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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Munetsugu Ueyama

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EXAMINER

PATEL, ISHWARBHAI B

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,171	Applicant(s) UEYAMA ET AL.	
	Examiner Ishwar (I. B.) Patel	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) 9-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to amendment filed on April 21, 2009.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otto (US Patent No. 6,188,921) in view of Christopherson (US Patent No. 6,339,047) and Higashiyama Kazuhisa (JP408106823).

Regarding claim 1, Otto discloses a superconducting wire, comprising an oxide superconductor and a cladding metal for cladding said oxide superconductor (oxide filament in metal sheath, column 5, line 1-10). Otto does not explicitly disclose a material of said cladding metal having a breaking strain of at least 30% in a stress-strain test. Otto discloses cladding metal to be silver or silver alloy (column 6, line 5-14). Otto further recites that stress / strain arises in the system which may induce defects into the brittle superconducting phase (column 6, line 14-30). That means the cladding material should be selected such that it will be able to withstand the stress / strain without passing it to the superconducting phase.

Christopherson discloses that even high purity silver usually contain some impurity. Christopherson further recites alloying silver with suitable material.

Higashiyama Kazuhisa discloses silver pipe with 99.99 % purity.

Therefore, a person of ordinary skill in the art at the time of applicant's invention would be motivated to have the metal cladding (silver) with the desired amount of impurity along with alloying material to control stress / strain of the cladding to avoid damage to the superconducting material.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the superconducting wire of Otto with said cladding metal having a breaking strain of at least 30% in a stress-strain test, as taught by Christopherson and Higashiyama, in order to control stress / strain of the cladding to avoid damage to the superconducting material.

Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involve only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 2-5, the desired value of breaking strain (claim 2-4) and maximum stress (claim 5), would have been obvious to a person of ordinary skill in the art at the time of applicant's invention, to adjust the specific limitations recited in claims to control stress / strain of the cladding to avoid damage to the superconducting material, as applied to claim 1 above.

Regarding claim 6, Otto further discloses the material of said cladding metal contains silver and/or silver alloy (column 6, line 5-14).

Regarding claim 7, Otto further discloses a material of said oxide superconductor contains a bismuth-based oxide superconductor (column 6, line 31-45).

Response to Arguments

4. Applicant's arguments filed April 21, 2009 have been fully considered but they are not persuasive.

Applicant, starting on page 2 of the response filed on April 21, 2009 argues that Otto, in order to create a high resistivity cladding metal, teaches forming a matrix that comprises "a silver-rich solid solution with **one or more** other elements, such as gallium, tin, zinc, indium or antimony. Mixing silver with one or more other elements at concentrations described or implied by Otto would create a metal sheath that is less pure than 10 ppm. Therefore, Otto teaches away from at least one of the features of claim 1. Applicant further argues that high purity silver taught in Christopherson and Kazuhisa would not create a high resistivity cladding that is the goal of Otto.

This is not found to be persuasive.

As applied in the rejection, Otto discloses silver metal with other elements added into the silver. Otto further recites that one or more of the elements will be added depending upon requirement. Also, Otto recites that Stress / strain arise in the system and may induce defect into the brittle superconducting phase (column 6, line 14-30).

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That implies that cladding material should be selected such that it will be able to withstand stress / strain without passing it to the superconducting phase. Furthermore, Otto recites that in order to avoid crack, a fracture strain higher than 1 % are preferred for practical handling of the superconducting composite (column 1, line 60-67). Silver is ductile (column 1, line 18-20) and adding impurity will increase the strength.

The secondary art of Christopherson is supporting use of silver with impurity and that of Kazuhisa discloses silver pipe with 99.99 % purity (100 ppm impurity).

Therefore, it would have been obvious for a person of ordinary skill in the art at the time of applicant's invention to add control impurity in the silver material of Otto, from the teaching of Christopherson and Kazuhisa, to have the desired strength. Therefore, Otto (modified) meets the limitation.

Applicant further argues that Hindsight Reasoning is Impermissible and states that the combination of Otto, Christopherson and Kazuhisa does not disclose the claimed invention having 10 ppm to 500 ppm impurity concentration and breaking strain of at least 30 % in a stress - strain test..

This is not found to be persuasive.

Any judgment on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." *In re McLaughlin* 443 F.2d 1392, 1395, 170 USPQ 209, 212

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(CCPA 1971). In the instant case, the primary art of Otto discloses silver with other impurity and further recites the need for increased fracture strain as explained above. The secondary art of Christopherson is supporting use of silver with impurity and that of Kazuhisa discloses silver pipe with 99.99 % purity (100 ppm impurity). Therefore, the combination meets the limitation.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ayai (US Patent No. 6,555,504) discloses silver containing manganese (column 2, line 49-52) and recite 0.1 to 0.5 % manganese to have desired strength (column 4, line 10-24).

Ohkura (US Patent No. 6,516,753) discloses silver alloy with the impurity of about 0.1 to 1.0 percent (column 2, line 53-58).

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (571) 272 1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ibp
July 4, 2009

/Ishwar (I. B.) Patel/
Primary Examiner, Art Unit 2841